

What is claimed is:

1. A method for enhancing the image resolution, wherein the method is applied  
to an image data carrier for storing or playing a high-resolution image at least  
twice the standard image resolution, the method comprising the following  
5 steps:
  - a. defining a video-audio data format and a plurality of user data formats  
on the image data carrier;
  - b. decomposing the high-resolution image into a plurality of primary  
images data of standard image resolution; and
  - 10 c. storing one set of the primary image data into the video-audio data  
format of the image data carrier and storing another primary image data  
set into the plural of user data formats.
2. The method according to claim 1, wherein the image data carrier is a DVD  
medium with a resolution of 720x480.
- 15 3. The method according to claim 1, wherein the image data carrier is a VCD  
medium with a resolution of 352x240.
4. The method according to claim 1, wherein the image data carrier is an SVCD  
medium with a resolution of 480x480.
5. The method according to claim 1, wherein the video-audio data format in  
20 step (a) is a primary viewing angle format setting of MPEG2 and the user  
data format is in a secondary viewing angle setting format.
6. The method according to claim 1, wherein the video-audio data format and  
the user data format are the video-audio data format and the user data format  
of MPEG1, respectively.

7. The method according to claim 1, wherein the manner of decomposing high-resolution image in step (b) is:  
evenly decomposing and distributing the plural image pixels of the high-resolution image, adjacent along a vertical direction or a horizontal screen on a screen, into corresponding plural pixels of primary image data, wherein the corresponding plural pixels are located at a same pixel position.
8. The method according to claim 1, further including at least one more step before step (c), wherein  
image compression technique is used to encode the primary image data and playable image data is formed.
9. The method according to claim 8, wherein the image compression technique is MPEG1.
10. The method according to claim 8, wherein the image compression technique is MPEG2.
11. The method according to claim 1, further including at least one more step before step (c), wherein  
the pixel of each primary image data is acquired, being located at the same pixel position, and the pixels are combined into the original high-resolution image.
12. A method for enhancing the image resolution, wherein the method is applied to an image data carrier for storing or playing a high-resolution image that is at least twice the standard image resolution, the method comprising the following steps:

- a. setting the image data carrier to have a video-audio data format and plural user data format;
  - b. decomposing the high-resolution image into plural primary image data of standard image resolution;
  - 5 c. storing the plural primary image data into the user data format;
  - d. calculating an average of the pixels at the same positions in the plural primary image data for forming a secondary image data; and
  - e. storing the secondary image data into the video-audio data format of the image data carrier.
- 10 13. The method according to claim 12, wherein the image data carrier is a DVD medium with a standard-resolution of 720x480.
14. The method according to claim 12, wherein the image data carrier is a VCD medium with a standard-resolution of 352x240.
- 15 15. The method according to claim 12, wherein the image data carrier is an SVCD medium with a standard-resolution of 480x480.
16. The method according to claim 12, wherein the video-audio data format in step (a) is a primary viewing angle format setting of MPEG2 and the user data format is a secondary viewing angle setting.
17. The method according to claim 12, wherein the video-audio data format and user data format are the video-audio data format and user data format of MPEG1, respectively.
- 20 18. The method according to claim 12, wherein a manner of decomposing the high-resolution image in step (b) is:  
evenly decomposing and distributing the plural image pixels in the adjacent

vertical and horizontal arrangement of the high-resolution image evenly into the pixels at same positions of the plural primary image data.

19. The method according to claim 12, further comprising at least one more step before step (c), wherein

5 image compression technique is used to encode the primary image data for forming a playable image data.

20. The method according to claim 19, wherein the image compression method is MPEG1.

21. The method according to claim 19, wherein the image compression method is  
10 MPEG2.

22. The method according to claim 12, further comprising at least one more step before step (c), wherein

image compression technique is used to encode the secondary image data for forming a playable image data.

15 23. The method according to claim 22, wherein the image compression technique is MPEG1.

24. The method according to claim 22, wherein the image compression technique is MPEG2.

25. The method according to claim 12, further comprising at least one more step  
20 before step (e) for playing high-resolution image in the image data carrier, wherein

pixels of each primary image data are acquired, being located at a same pixel position, and the pixels are combined into an original high-resolution image.

26. An apparatus for encoding picture data to enhance image resolution and storing the high-resolution image at least twice the standard image resolution to a image data carrier, the encoding apparatus comprising at least:
- 5           an image-decomposing unit, which reads out the high-resolution image and decompose the high-resolution image into plural primary image data of standard image resolution;
- an image operation unit, for calculating an average value of pixels at the same position from plural primary image data for forming secondary image
- 10          data; and
- an image storage unit, storing the plural primary image data into plural user data format of the image data carrier; and
- storing the secondary image data in a video-audio data format of the image data carrier.
- 15          27. The encoding apparatus according to claim 26, wherein the image data carrier is a DVD, VCD or SVCD medium.
28. The encoding apparatus according to claim 26, wherein the user data format is a secondary viewing angle data format of MPEG2 and the video-audio data format is a primary viewing angle data format.
- 20          29. The encoding apparatus according to claim 26, the apparatus further comprises:
- an image-encoding unit utilizing an image compression technique to encode the primary and secondary image data and form a playable image data.
30. The encoding apparatus according to claim 29, wherein the image

compression technique utilized in image encoding unit is MPEG1 or  
MPEG2.

31. A playback apparatus for playing the resolution enhanced image, which plays  
a high-resolution image data carrier with at least twice a standard image

5 resolution, the playback apparatus at least comprising:

a readout unit to read out the plural user data format on the  
high-resolution image data carrier; and

an image-combining unit to acquire each pixel at a same position of every  
user data format to combine and restore the high-resolution

10 image.

32. The playback apparatus according to claim 31, wherein the high-resolution  
data carrier is a DVD, VCD or SVCD medium.

33. The playback apparatus according to claim 31, wherein the user data format  
is a secondary viewing angle data format of MPEG2.

15 34. The playback apparatus according to claim 31, further comprising:  
a decoding unit to decode the image data carrier by using image  
compression technique and forming a playable image signal.

35. The playback apparatus according to claim 34, wherein the image  
compression technique used in the decoding unit is MPEG1 or MPEG2.

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